

- Freeway and intersection operations will be qualitatively assessed to determine if there are major operational constraints to any alternative
- Comparison matrix is anticipated to be developed in association with other members of the Project Team

Scope of Services

- Participate in design improvement concept development process with the Project Team
- Perform initial traffic analysis for up to six (6) distinct design improvement concepts using VISUM model and Future Year alternative modes usage/assessment results
- Develop traffic comparison matrix evaluation criteria with the Project Team
- Document initial multimodal alternatives evaluation with VISUM model results showing color-coded volume to capacity ratios of roadway links that can also be used for workshops
- Develop up to three (3) preferred strategy/strategies to achieve consensus among stakeholders and the public for top alternatives from the evaluation process and develop the preferred solution for all travel modes within the Greenbrae corridor
 - Transportation input will be provided for incorporation into screening documentation

Deliverables

- Summary memorandum of each screening activity (initial, secondary, and preferred strategies) including comparison matrix related to transportation performance and VISUM Model maps documenting findings. The memorandum will also include suggestions for short-term, mid-term and long-term improvements.

5. Conceptual Engineering

Basis of Estimate

- TAM will provide MarinMap for use as base mapping including:
 - aerial topography at a scale of 1"=50' with contour interval of 2'
 - APN property lines and some underground facilities based on GIS information
 - local control information for supplemental survey work
- Caltrans will provide As-Built plans, Bridge inspection reports, Right-of-Way maps for project study area
- Marin County, City of Larkspur, and Town of Corte Madera will provide infrastructure plans and other mapping, as available, within the project study area
- Consultant will obtain previous data, studies, and reports regarding historic flooding from the following:
 - Marin County Flood Control
 - Corps of Engineers, San Francisco District
 - Town of Corte Madera
 - City Larkspur

- Other known private or public research studies, if available
- Consultant will obtain previous planning studies
 - Interim Planning Report - May 2002
 - Central Marin Ferry Connection – 2004
 - Latest Marin County plans for Transit, Bicycles, School Routes, etc
 - Review and Update Project Information
- Filing Corner Records, Records of Survey or preparing other documents suitable for Recordation are not included

5.1. Base Maps

Scope of Services

- Obtain and review available pertinent project area data from MTC, Caltrans, City and County agencies, and private and public research archives
- Catalog existing information
- Compile, develop, and distribute aerial, topographic, as-built, and other pertinent information into a working base map for the project team
- Compile a list of available information for use as resource by the project team that is not included on the base map

Deliverables

- Base mapping
- Catalog of existing information

5.2. Constraints Maps

Scope of Services

- Develop Project Site Constraints Map, which identifies known constraints such as biology, flooding, access, sight distance, wetlands, community uses, and others on the base map
- Organize, conduct and document one (1) Project Site Constraints Coordination meeting with the project team to confirm/revise constraints map

Deliverable

- Constraints map (layers added to base mapping)

5.3. Supplemental Surveys

Scope of Services

- Provide up to 5 days of supplemental topographic surveying as identified by priority by the project team. Perform technical engineering to compile the field information and add it to the base map
- Provide boundary survey research and field survey for up to 10 parcels in two areas
 - Up to 3 days of record research and compilation to best determine the location of property lines in the selected areas

- Up to 2 days of field time to tie in corners, monuments and other survey record information to best define property lines along the Caltrans R/W
- Compile field and research information into a series of informal plats identifying the boundary information compiled

Deliverables

- Survey notes, boundary information, and updated base map

5.4. Highway Improvement/Local Streets Improvements

Basis of Estimate

- Up to six (6) design improvement concepts will be developed for initial screening activities
- Up to three (3) consensus alternatives will be further detailed to be carried forward to PA/ED phase

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Identify and document non-standard highway features
- Conduct one team brainstorming sessions to identify and coordinate potential improvements
- Develop initial conceptual alternatives
 - horizontal and vertical alignment and significant ROW requirements
- Conduct screening with agency and obtain public input to identify with design concepts with highest potential for consensus
- Develop consensus alternative packages
 - Include horizontal and vertical alignment, weaving segments, ROW requirements, major utility relocation, major drainage structures, identification of Caltrans design exceptions
- Prepare order of magnitude estimates

Deliverables

- Catalog of existing information
- Improvement Packages including plans and profiles
- Plans, profiles and graphics for public workshops
- Technical memorandum identifying design criteria and potential impacts
- Order of magnitude estimates for each alternative
- Technical Memorandum comparing geometrics of initial and conceptual improvement packages and recommendations for screening

5.5. Drainage

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Provide a overall view of the drainage and flood challenges that are present in the project study area
- Establish Base Flood Elevations (BFE) for 100-years and identify likely sources of potential flooding due to:
 - Corte Madera Creek
 - Global Warming/Sea Level rise
 - Tsunami
 - Levee Failures
 - Corte Madera drainage ponds
 - Local peak flows
- Identify elevations of new facilities to minimize flood potential

Deliverables

- Catalog of existing information
- Drainage Technical Memo

5.6. Structures

5.6.1. Multi-Modal Structure

Basis of Estimate

- For Workshop 1: Attendance at meeting to identify issues and to listen and understand various stakeholder interests.
- For Workshop 2: Concept sketches for up to seven (7) bridge crossings, 1-base case and 2 variations of 3 corridor types. Sketches (up to 7) will be line drawings of Multi-Modal (Pedestrian and Bicycle) Bridge Corridor (MMBC) elevations only. Photos of similar types will be assembled as well as a qualitative evaluation matrix for known screening criteria
- For Workshop 3: Concept sketches and preliminary structure concept for up to three (3) bridge crossings as well as a qualitative evaluation matrix for known screening criteria. Concept sketches will be hand sketch renderings for up to 3 points of view for each alternative (up to 9) and line drawing showing for Plan, Elevation and Typical Section (up to 3)
- For Final Meeting & Alternatives Analysis: Preliminary structure concept description, profiles and typical section for two (2) bridge crossings, consensus alternative and the benchmark design (Total = 2 General Plan Line Drawings)

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project

- Determine USCG vertical clearance requirement for Corte Madera Creek, east of Hwy 101
- Develop conceptual structural concepts and conceptual construction schematics for each of the identified bridge sections along the MMBC: (i) the crossing at Corte Madera Creek and its banks; (ii) crossing at Sir Francis Drake Blvd; (iii) possible ramp connections to Sir Francis Drake Blvd; (iv) approaches and wetlands areas for use in scoping and screening activities
- Develop order of magnitude cost estimates
- Prepare drawings, sketches, graphics, and other informational handouts for proposed MMBC

Deliverables

- Catalog of existing information
- Preliminary structure concept description including General Plan, Elevation and Typical Section for two (2) bridge crossings, consensus alternative and the benchmark design (Total = 2 General Plan Line Drawings)
- Conceptual cost estimates (order of magnitude costs) for construction and maintenance

5.6.2. Highway/Ramp/Roadway Structures

Basis of Estimate

- Preliminary information and analyses will be performed to support the development of improvement packages listed above
- The only field investigations to be performed at this point are a visual review of the existing structures
- No engineering drawings are required for this report, although hand sketches may be provided to illustrate a specific point, if required

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Conduct field reviews of the project study area and prepare an inventory of existing structures
 - Obtain photographs of the existing structures including abutments and superstructures
 - Complete field review
- Prepare concept sketches for potential project structures, including new bridges, existing bridge modifications and/or non-standard retaining walls
- Provide conceptual level engineering and cost analysis of initial alternatives to support the scoping and screening of alternatives

- Prepare technical memorandum comparing conceptual structural alternatives and making recommendations for screening

Deliverables

- Catalog of existing information
- Field Observation Form with photographs
- Concept sketches/drawings for new bridges, bridge modifications, and non-standard retaining walls
- Conceptual cost estimates
- Technical memorandum comparing conceptual structure alternatives

5.7. Geotechnical

Scope of Services

- Obtain and review available pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Summarize available existing surface and subsurface data, and field and construction reports within project limits and compile in reproducible format for project library
- Prepare Technical Memo summarizing existing geological and geotechnical data that provides a general assessment of ground conditions to support the alternatives development

Deliverables

- Catalog of existing information
- Preliminary Geotechnical Technical Memo

5.8. Urban Design

Basis of Estimate

- The visual simulations will include one view illustrated with two (2) alternative urban design treatments of the Corte Madera Creek pedestrian/bicycle bridge, one (1) urban design treatment of the Tamalpais interchange, and one (1) view of another element of the transportation design concepts

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Integrate multi-modal and context-sensitive design solutions, particularly in relation to pedestrian and bicycle improvements across the Hwy 101 and Corte Madera Creek; streetscape, landscape, site access, and other elements of the transportation improvements; and the urban design of proposed transportation structures

- Prepare sketch overlays of initial design concepts by the freeway and local street designs to demonstrate urban design and multi-modal improvements to the initial design concepts
- Refine design concepts to integrate an urban design approach into the proposed transportation structures, streetscape concepts into the proposed improvements, and design concepts for appropriate multi-modal improvements
- Develop up to four (4) visual simulations for a subset of the proposed improvements
- Maximize opportunities to mitigate potential land use, community, and visual impacts of the proposed solution elements through the urban design of the solutions

Deliverables

- Catalog of existing information
- Technical memorandum summarizing multi-modal design and urban design considerations of the existing built and natural environment and past transportation studies within the study area that also highlights existing and future land use context in the study area
- Sketch overlays of suggested urban design and multi-modal improvements
- Refined design concepts
- Visual simulations

6. Environmental

6.1. Environmental Strategy and Screening

Basis of Estimate

- An Environmental Constraints Technical Memorandum will be used to document the environmental screening task. The document will provide brief summaries of reconnaissance-level surveys. The environmental constraints technical memorandum will include discussion of NEPA and CEQA compliance strategies with an emphasis on streamlined approaches to conducting the environmental process during PA/ED
- Environmental screening of up to 10 initial alternatives may be required. Alternatives are assumed to be within the project area and be combinations of freeway, ramp reconfigurations, and local streets, including pedestrian and non-motorized components
- Limited field investigation is expected to be developed to produce the environmental constraints technical memorandum
- CEQA/NEPA document will not be prepared under Task Order 1
- Noise monitoring and modeling will not be conducted during the environmental screening task
- No subsurface investigations for cultural resources, hazardous materials, or geology will be conducted

- Wetlands will not be delineated and species habitats will not be mapped. General areas where these resources may be present will be shown on project aerial maps

Scope of Services

- Obtain and review all pertinent project area data from Caltrans, City and County agencies, and private and public research archives
- Catalog existing information related to project
- Conduct Field Reviews to identify potential environmental issues in the corridor
 - Document in brief memoranda or on project aerial photographs
- Prepare an Environmental Constraints Technical Memorandum to document the outcome of the environmental screening task including existing conditions illustrated on base mapping
- Develop baseline environmental data for the following subject areas and a screening level impact analysis (fatal flaw) will be conducted for the alternatives developed during the screening process
- **Biology** – A general overview of biological resources within the project area and specific environmentally sensitive areas will be noted on maps. Informal consultation will be conducted as needed with resource agencies to understand regulatory issues
 - Resources expected to be addressed include special status plants, wetlands and tidal marsh areas, fisheries and aquatic species and wildlife migration corridors
 - Ecological restoration plans under consideration for aquatic sites within the project area will be researched and briefly reviewed. Project sponsors will be coordinated with through the public outreach process
- **Cultural Resources** – A survey of known cultural resources information will be presented in the context of a constraints analysis. This will entail
 - Delineation of a general study area for cultural resources
 - Records search and informal agency discussion to determine whether the project area has already been adequately surveyed for cultural resources (including prehistoric sites, historic sites, and historical structures), whether any such resources have been recorded there, and whether there is the potential for buried archaeological sites
 - The records search would include the project area and a half mile buffer. Letter to Native American Heritage Commission
 - A short technical memorandum, primarily in tabular form, would then synthesize findings
- **Section 4(f)** – Potential Section 4(f) resources will be identified and potential impacts of alternatives to the properties will be documented. Brief discussion of avoidance alternatives and minimization measures will be prepared and presented in the constraints analysis
- **Socioeconomic/Community** – Environmental screening will use information from the public input process to document community concerns. A general description of

land uses and community facilities/resources will be prepared and documented in the constraints analysis. Community general plans for Corte Madera and Larkspur will be reviewed. Impacts will be assessed by documenting people effects to residences and businesses, locations which may be subject to community cohesion effects, environmental justice effects, and conflicts with community plans

- **Noise** – General locations of noise-sensitive receptors will be identified and locations where existing noise barriers exist will be documented. Potential noise barrier locations may be suggested as part of conceptual design of alternatives but a noise analysis will not be conducted as part of the environmental screening task
- **Air Quality** – Potential air quality sensitive receptors will be documented on project aerial photographs. Review of initial traffic results will be used to determine the need for future air quality analyses
- **Paleontological Resources** – Results of cultural resources analysis and review of available geology information and recent environmental documents in the project vicinity will be used to determine sensitivity for paleontological resources
- **Water Quality** – Available site-specific and regional reports will be used to evaluate potential project impacts to stormwater, surface water, and groundwater quality. Requirements for future hydrology studies (eg, Location Hydraulic Studies) will be described
- **Floodplain** – Floodplain maps (FEMA FIRM) will be reviewed and previous environmental documents will be reviewed to document potential for flooding for project alternatives. A Location Hydraulic Study will not be performed as part of the water quality analysis
- **Hazardous Wastes** – Regulatory record searches, review of historical resources, and a site reconnaissance will be conducted to identify potential hazardous materials sites that may impose constraints on alternatives. Results will be reported in a brief technical memorandum. Maps from database searches will be included as an appendix to the technical memorandum
- **Scenic and Visual Resources** – A general discussion of visual sensitivity will be prepared using available general plans and recent environmental documents. The quality of the visual environment will be briefly described. Potential visual sensitive areas or key views will be identified on project aerial photos
- **Environmental Compliance Strategy** – Consultant will participate in environmental screening of project alternatives. As part of the screening, potential environmental compliance strategies, including advancement of individual projects within an overall environmental compliance strategy will be evaluated

Deliverables

- Catalog of existing information
- Information for project resources on base mapping
- Environmental Constraints Analysis Report
- Supporting technical memoranda for environmental screening

6.2. Screening and Consensus Alternatives for Further Study

Basis of Estimate

- Engineering alternatives will be developed at a conceptual level only for the purpose of supporting the environmental/public screening process

Scope of Services

- Develop and present screening criteria for input. Actual criteria will be developed in a collaborative process with project participants
- Conduct Alternatives Screening using an iterative screening process
- Conduct conceptual engineering design reviews, as required. Maintain matrix of evaluation, including sub-alternatives developed in the process of studying alternatives

Deliverables

- Alternatives screening memorandum

7. Financing Advice and Strategies

Scope of Services

- Assist with identification of potential alternative funding strategies for short- and long-term improvements
- Prepare preliminary alternative funding strategies to supplement existing funding for the improvements.

Deliverables

- Alternative funding strategy concept memo

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